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H. H. Barrow  
and  
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UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PUBLIC ROADS  
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief

MONTHLY NEWS LETTER

WASHINGTON, D. C., November 21, 1927.

Mr. McCrory and Professor Walker attended the meeting of the North Atlantic Section, American Society of Agricultural Engineers, at Pittsburgh, October 19 - 21. L. A. Jones of this Division also attended as the contact engineer between this Division and the Office of Extension Work. On November 1 Mr. McCrory left Washington for a trip that extended as far west as Albuquerque, N. M., where he met Mr. McLaughlin for a conference with reference to irrigation work. En route to Albuquerque Mr. McCrory spent two days with Messrs. Johnson and Bennett at Tallulah, La., where he witnessed demonstrations of drying cotton by the apparatus developed by these men. At Clarksdale, Miss., Mr. McCrory inspected the operation of a cotton picking machine. At Dallas, Texas, he was joined by Professor Walker, and together with Professor Scoates of the Texas A and M. College and certain others, spent a few days in studying the use of cotton harvesting machinery in northwest Texas. From Albuquerque Mr. McCrory proceeded to Washington, stopping en route to confer with officials of the Oklahoma Agricultural College with reference to a co-operative erosion and terracing project. At St. Louis he met Mr. Ramser for a conference with reference to the latter's work.

Dr. H. Schildknecht, an agricultural engineer from Switzerland, has a temporary appointment with this Division to collaborate with Mr. Staebner on a study of the drainage characteristics of soils. Dr. Schildknecht has been in this country since the International Soil Congress last June. He has done considerable original work with reference to drainage properties of soil, and the Division is fortunate to secure his temporary assistance. During the early part of November Mr. Staebner and Dr. Schildknecht made a trip to North Carolina, where they were joined by Mr. Bartel, and together secured a number of soil samples from different points on which it is purposed to experiment in the laboratory.

W. W. McLaughlin and Paul A. Ewing made a trip to Oregon during the month to discuss with State officials and others a proposed plan of reorganization of Warm Springs Irrigation District.



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R. G. HEMPHILL REPORTS SATISFACTORY PROGRESS IN THE COOPERATIVE SILT INVESTIGATION IN TEXAS. DAILY SAMPLES HAVE BEEN TAKEN AT EIGHT STATIONS ON THE BRAZOS RIVER FOR MORE THAN THREE YEARS NOW, AND IT IS BELIEVED THAT THESE LONG-TERM RECORDS WILL FORM A FAIR BASIS FOR ESTIMATING THE SILT RUN-OFF FROM OTHER AREAS WHEN DIFFERENCES IN TOPOGRAPHY, COVERING, AND RAINFALL ARE TAKEN INTO CONSIDERATION. NEW SAMPLING STATIONS ON THE NUECES, SAN ANTONIO AND COLORADO (OF TEXAS) RIVERS WILL PROVIDE A CHECK ON SUCH ESTIMATES UNDER CONDITIONS DIFFERENT FROM THOSE OBTAINING IN THE BRAZOS BASIN. ON THE BASIS OF 85 POUNDS OF DRY MATERIAL TO THE CUBIC FOOT OF DEPOSIT, THE BRAZOS STATIONS ARE SHOWING A RUN-OFF OF 0.25 TO 0.36 ACRE FOOT OF SILT PER YEAR PER SQUARE MILE OF DRAINAGE. WHILE NO RESERVOIRS HAVE BEEN FOUND WHICH WERE PARTICULARLY SUITED TO THE PURPOSE, A FEW HAVE BEEN SURVEYED TO DETERMINE THE VOLUME OF ACTUAL SILT DEPOSITS. THESE SURVEYS HAVE SHOWN A SILT RUN-OFF RANGING FROM 0.22 TO 0.50 ACRE FOOT PER YEAR PER SQUARE MILE OF DRAINAGE. MUCH WORK HAS BEEN DONE TO DETERMINE THE DISTRIBUTION OF SUSPENDED SILT IN THE CROSS-SECTION OF STREAMS. THE DISTRIBUTION IN THE VERTICAL SEEMS FAIRLY CONSISTENT, THE PERCENTAGE SHOWING A GRADUAL INCREASE FROM TOP TO BOTTOM WITH THE AVERAGE OF THE VERTICAL OCCURRING AT SIX-TENTHS OF THE DEPTH. THE DISTRIBUTION ACROSS THE STREAM IS NOT CONSISTENT AND APPEARS TO DEPEND CHIEFLY ON THE COURSE OF THE STREAM ABOVE THE STATION, DISINTEGRATING SAND BARS, AND OTHER FACTORS. THE CHANGE IN VELOCITY FROM CENTER TO SIDES DOES NOT SHOW UP AS A CONTROLLING FACTOR. MUCH WORK IS BEING DONE ON THE RELATION BETWEEN VOLUME AND WEIGHT OF DEPOSITED SILT, AND VARIOUS OTHER PHASES OF THE PROBLEM ARE BEING STUDIED.

JAMES C. MARR STATES THAT THE SEASON'S WORK ON THE COOPERATIVE RECLAMATION OF ALKALI LAND PROJECT IS ABOUT COMPLETED. AFTER ABOUT 20 DAYS' CONTINUOUS OPERATION OF THE LARGE DRAINAGE PUMP AND WELL INSTALLED NEAR NAMPA, IDAHO, OBSERVATION OF SURROUNDING WATER LEVELS SHOWS THAT EFFECTIVE DRAINAGE IS BEING ACCOMPLISHED FOR AT LEAST 0.7 MILE. VERY GREAT INTEREST IS BEING DISPLAYED IN THIS METHOD OF DRAINAGE, AND ONE LARGE IRRIGATION DISTRICT AND SEVERAL SMALL TOWNS ARE CONTEMPLATING SIMILAR INSTALLATIONS. THIS PARTICULAR PLANT YIELDS ABOUT  $6\frac{1}{2}$  SECOND-FOOT OF WATER AND WILL COST ON THE BASIS OF \$1,500 PER SECOND-FOOT, ELECTRIC POWER FOR OPERATION COSTING CLOSE TO ONE CENT PER K.W.H.

W. D. ELLISON REPORTS THE FOLLOWING RESULTS OF THE DETERMINATION OF N THUS FAR MADE ON DRAINAGE DITCHES IN INDIANA.

	NO. OF MEASURE- MENTS.	VALUE OF N
SEEGAR DITCH .....	7	.0181 to .0342
ROBINSON DITCH .....	6	.0279 to .0314
McCULLOCH DITCH .....	7	.0124 to .0212
FAIRFIELD .....	2	.0243 to .0273
LITTLE WABASH RIVER .....	5	.0313 to .0427
GRAHAM McCULLOCH DITCH ....	9	.0280 to .0350

D. G. MILLER AND P. C. MCGREW HAVE RECENTLY VISITED A NUMBER OF TILE PLANTS IN MINNESOTA, COLLECTING SAMPLES OF CLAY TILE TO BE TESTED IN THE ST. PAUL LABORATORY. MR. MILLER IS NOW IN IOWA SECURING SIMILAR SAMPLES FROM PLANTS LOCATED IN THAT STATE. AT THIS TIME MR. MILLER IS PARTICULARLY INTERESTED IN FREEZING AND THAWING TESTS.





R. L. PARSHALL AND CARL ROHWER HAVE DRAWN UP A TENTATIVE DESIGN FOR A NEW TYPE OF WATER STAGE RECORDING INSTRUMENT INCORPORATING A PERFORATING MECHANISM WHICH WILL ELIMINATE THE UNCERTAINTIES OCCASIONED BY THE USE OF PEN OR PENCIL.

C. A. TAYLOR STATES THAT THE FIRST FALL RAIN AFFECTING THE CO-OPERATIVE DUTY OF WATER FIELDS IN SAN DIEGO COUNTY FELL OCTOBER 26 - 31, MARKING, IN ALL PROBABILITY, THE END OF THE SUMMER IRRIGATION SEASON. A CONTINUOUS SOIL MOISTURE RECORD ON ALL PLOTS HAS BEEN OBTAINED FROM MARCH 15 TO OCTOBER 25.

M. C. BETTS AND M.A.R. KELLEY HAVE SPENT SOME TIME ON THE EASTERN SHORE OF VIRGINIA OBTAINING DATA ON THE OPERATION OF A THREE STORY SWEET POTATO STORAGE HOUSE DESIGNED BY THIS DIVISION. THE EXPERIMENT NOW UNDER WAY CONSISTS OF CURING SWEET POTATOES AT DIFFERENT TEMPERATURES TO DETERMINE WHETHER THEY CAN BE CURED AT LOWER TEMPERATURES THAN ARE USUALLY RECOMMENDED AND ALSO TO ASCERTAIN TO WHAT EXTENT IT IS POSSIBLE TO MAINTAIN UNIFORM TEMPERATURES IN THE STORAGE ROOMS. MR. KELLEY WILL BE ENGAGED ON THIS PROJECT FOR SEVERAL MONTHS.

W. M. HURST IS ENGAGED IN A STUDY OF COTTON HARVESTING IN TEXAS IN COOPERATION WITH THE TEXAS AGRICULTURAL EXPERIMENT STATION. HE EXPECTS TO COMPLETE THAT JOB ABOUT DECEMBER 1.

W. R. HUMPHRIES HAS COMPLETED HIS WORK ON THE USE OF THE COMBINE IN INDIANA AND HAS RETURNED TO WASHINGTON. G. A. CUMINGS SPENT TWO WEEKS IN VIRGINIA IN CONNECTION WITH THE USE OF THE COMBINE IN HARVESTING BEANS.

R. B. GRAY, WHO IS STATIONED AT TOLEDO, OHIO, IN CONNECTION WITH ENGINEERING WORK RELATING TO CONTROL OF THE CORN BORER, RECENTLY SPENT A FEW DAYS IN WASHINGTON, CONFERRING WITH OFFICIALS OF THE BUREAU OF ENTOMOLOGY AND THE SOLICITOR'S OFFICE, IN CONNECTION WITH PROBLEMS ARISING IN THAT WORK.

AT THE REQUEST OF DR. WARBURTON OF THE OFFICE OF EXTENSION WORK, T.A.H. MILLER ON NOVEMBER 17, LEFT FOR BURLINGTON, VERMONT, TO CONFER WITH MR. BRADLEE, DIRECTOR OF EXTENSION IN VERMONT, WITH REFERENCE TO WHAT THIS DIVISION WILL BE ABLE TO FURNISH IN THE WAY OF PLANS AND ADVICE IN THE REHABILITATION OF THE AREA DEVASTED BY THE RECENT FLOOD. DIRECTOR BRADLEE ADVISES THAT THE REBUILDING OF MANY STRUCTURES IS NECESSARY AND THAT ONE OF THEIR MOST SERIOUS PROBLEMS IS THE COVERING OF AGRICULTURAL LAND WITH DEBRIS. AS AN EXAMPLE, HE CITES CASES WHERE SUCH LAND IS COVERED WITH AS MUCH AS 4 FEET OF GRAVEL AND SILT.

MR. SENNER, IN COLLABORATION WITH MR. BOWEN, IS ENGAGED IN THE DESIGN OF AN OIL BURNER FOR THE DESTRUCTION OF THE CORN BORER. MR. SENNER RECENTLY SERVED IN AN ADVISORY CAPACITY TO THE TREASURY DEPARTMENT'S ENGINEERS IN RE-DESIGNING THE OIL BURNING LAYOUT IN A LARGE 3-STORY GARAGE RECENTLY OCCUPIED BY THAT DEPARTMENT. THE PLANT IS NOW APPARENTLY OPERATING SUCCESSFULLY.



1. The first part of the report deals with the general situation of the country and the progress of the work during the year.

2. The second part of the report deals with the results of the work done during the year, and the progress of the various projects.

3. The third part of the report deals with the financial statement of the year, and the results of the various projects.

4. The fourth part of the report deals with the results of the work done during the year, and the progress of the various projects.

5. The fifth part of the report deals with the results of the work done during the year, and the progress of the various projects.

6. The sixth part of the report deals with the results of the work done during the year, and the progress of the various projects.

7. The seventh part of the report deals with the results of the work done during the year, and the progress of the various projects.

8. The eighth part of the report deals with the results of the work done during the year, and the progress of the various projects.

9. The ninth part of the report deals with the results of the work done during the year, and the progress of the various projects.

10. The tenth part of the report deals with the results of the work done during the year, and the progress of the various projects.



GEORGE R. BOYD, ABOUT NOVEMBER 1, BEGAN A TRIP IN WHICH HE VISITED THE GIBBSTOWN AND BARKSDALE CARTRIDGING PLANTS AND SEVERAL OF OUR CO-OPERATING AGENCIES IN THE DISTRIBUTION OF PYROTOL. MR. BOYD RECENTLY HAS BEEN DEVOTING HIS ATTENTION PARTICULARLY TO EXPEDITING ORDERS ON THE GIBBSTOWN, N. J. PLANT, IN ORDER THAT THE REMAINING SMOKELESS POWDER AT TULLYTOWN, PA., MAY BE SHIPPED TO GIBBSTOWN, THUS ENABLING THE CLOSING OF THE TULLYTOWN STORAGE BY DECEMBER 1.

PYROTOL SHIPMENTS FOR OCTOBER WERE AS FOLLOWS:

BARKSDALE .....	887,700	LBS.
DuPONT .....	1,128,500	"
GIBBSTOWN .....	632,650	"

THOSE WHO WERE ACQUAINTED WITH R. B. SLEIGHT WHEN HE WAS WITH IRRIGATION INVESTIGATIONS SEVERAL YEARS AGO, WILL REGRET TO LEARN THAT HE WAS KILLED IN AN AIRPLANE ACCIDENT ON NOVEMBER 14. AT THE TIME OF HIS DEATH MR. SLEIGHT WAS SECRETARY TO SECRETARY HOOVER AND HAD GONE TO VERMONT IN CONNECTION WITH FLOOD RELIEF WORK.

THREE REPORTS BY L. T. JESSUP TO THE BUREAU OF BIOLOGICAL SURVEY HAVE BEEN RECEIVED BY THE BERKELEY OFFICE, AS FOLLOWS:

"REPORT ON PROPOSED REFLOODING OF A PORTION OF LOWER  
KLAMATH LAKE, CALIFORNIA."

"PRELIMINARY REPORT ON MALHEUR LAKE, OREGON."

"PRELIMINARY REPORT ON KLAMATH MARSH, OREGON."

THE FOLLOWING MANUSCRIPTS ARE IN COURSE OF PREPARATION FOR PUBLICATION BY THE DEPARTMENT:

"SILT IN THE COLORADO RIVER" BY SAMUEL FORTIER AND H. F. BLANEY.

"VENTILATION OF FARM BARNs" BY M. A. R. KELLEY.

"REFRIGERATION" BY J. T. BOWEN.

"A STUDY OF THE OIL BURNER AS USED FOR DOMESTIC HEATING" BY  
A. H. SENNER.

"IRRIGATION OF COTTON" BY R. G. HEMPHILL AND J. C. MARR.

"MAKING CELLARS DRY" BY G. M. WARREN.

"MUTUAL IRRIGATION COMPANIES", BY W. A. HUTCHINS.

THE FOLLOWING FARMER'S BULLETINS HAVE BEEN REVISED AND WILL PROBABLY BE REPRINTED IN THE NEAR FUTURE:

No. 815 "ORGANIZATION, ADMINISTRATION AND FINANCING OF  
DRAINAGE DISTRICTS" BY H. S. YOHE.

" 863 "IRRIGATION OF GRAIN" BY W. W. McLAUGHLIN.

" 864 "PRACTICAL INFORMATION FOR BEGINNERS IN IRRIGATION"  
BY SAMUEL FORTIER.

" 1131 "TILE-TRENCHING MACHINERY" BY D. L. YARNELL.

" 1404 "PUMPING FROM WELLS FOR IRRIGATION" BY P. A. EWING.

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